SPRINGTIME ATMOSPHERIC NITROGEN OVER THE MEADOWLANDS

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Nitrogen oxides (NO, NO_2) are highly reactive gases in the ambient air, which are precursor molecules for the production of ground-level ozone (O_3). The O_3 production rate strongly depends on the concentrations of NO and NO_2. High concentrations of O_3 in the ambient air can trigger serious respiratory and other health-related problems. Therefore, an adequate knowledge of the characteristics of NOx in the ambient air is crucial for the assessment of O_3 pollution and air quality. On the other hand, particulate nitrate and gaseous nitric acid also affect air quality, in particular acid rain, and their deposition may affect certain sensitive aquatic ecosystems. To characterize atmospheric nitrogen over the Meadowlands district, the measurements of nitrogen oxides and O3 in the ambient air are undertaken through the use of a chemiluminescent NO-NO2-NOx analyzer and O_3 analyzer, housed in the Meadowlands Environmental Research Institute. Additional measurements of particulate nitrate and gaseous nitric acid will also be carried out at the same location. In this presentation, we will focus our discussions on the springtime characteristics of these atmospheric species in the ambient air over the Meadowlands, in particular their concentrations and relationships.

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